

## ABSTRACT

A device and a method are provided for the analysis of a sample plate on which at least two material samples are situated. In the method, one impedance spectrum is measured for each of the material samples. As a function of the respectively measured impedance spectrum, a configuration of a circuit equivalent is determined which includes at least one electronic component. Then, for an error minimization computation, starting values for the components of the respective circuit equivalents are determined. In the error minimization computation, a theoretical impedance spectrum is calculated for at least one of the material samples, based on the impedance spectrum measured for the material sample, as well as the starting values for the components of the respective circuit equivalent, and fit values are determined for the components of the respective circuit equivalent. Subsequently, a validation variable is determined for the calculated, theoretical impedance spectrum, and an evaluation variable is ascertained by comparison of at least one of the fit values for the components to a reference value.